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Title of invention: Card cleaning apparatus

Abstract: [ABSTRACT]

Is shifted debris such as the dust which bonded to card because face welds an adherence roller having stickiness to be stronger than rubber roller with pressure to rubber roller rotating along with transportation of card to rubber roller, is shifted debris shifted more by rubber roller to an adherence roller, the debris which bonded to card is completely removed, and card and rubber roller touching directly are held by the condition that is Wataru tsute excellence for long term.

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(57)
[ABSTRACT]

[PURPOSE]

An alien substance such as the earthly affairs that bonded to a card is removed.

[CONSTITUTION]

Paths of transportation H of card C is installed in consonance with an interval with rubber roller 10 of the first rubber roller 7 and the second, while card C can leave *hasamioshi* to 7,10 ken both rubber rollers, become transport to Imperial court music in Chinese style. In addition, Adhesion roller 16 comprising the strong adhesive strength pressures contact with top of the first rubber roller 7 with the first rubber roller 7. When card C is transported to the left, is shifted to the first rubber roller 7 alien substance 15 such as the earthly affairs that bonded to card C, is shifted to adhesion roller 16 alien substance 15 shifted to the first rubber roller 7 more, because card C and rubber roller 7 of the first to touch directly are always cleaned with adhesion roller 16, alien substance 15 which bonded to card C is completely removed.

[CLAIM FOR THE UTILITY MODEL REGISTRATION]

[Claim 1]

Card cleaning apparatus; wherein; The rubber roller which rotates along with transportation of a card, Is welded with pressure to said rubber roller the surface comprises the strong adhesiveness than said rubber roller and and gravity or a spring is gone through, a turn of said rubber roller and the adhesion roller which it cooperates with, and rotate are comprised, and it is, when said card is transported, it makes an alien substance such as the earthly affairs that bonded to said card shift to said rubber roller, the alien substance which shifted on more said rubber roller was composed to shift to said adhesion roller.

[BRIEF DESCRIPTION OF DRAWINGS]

[FIG. 1]

It is the exploded perspective view that card cleaning apparatus concerning the present invention is disassembled, and was shown.

[FIG. 2]

It is the perspective diagram which adhesive tape member shown in FIG. 1 is magnified, and was shown.

[FIG. 3]

It is a figure to explain movement of card cleaning apparatus concerning the present invention.

[FIG. 4]

It is the figure which showed the transformation card cleaning apparatus concerning the present invention in question typically.

[FIG. 5]

It is the perspective diagram which showed a cleaning unit of a conventional card typically.

[DENOTATION OF REFERENCE NUMERALS]

One ... card cleaning apparatus, seven ... rubber rollers (the first rubber roller), ten ... rubber rollers (the second rubber roller), 15 ... alien substances, 16 ... adhesion rollers, 20 ... (transformation example) card cleaning apparatus, 21 ... rubber rollers (a non-drive rubber roller), a C ... card.

[DETAILED DESCRIPTION OF THE INVENTION]

[0001]

[INDUSTRIAL APPLICATION FIELD]

The present invention relates to card cleaning apparatus removing an alien substance such as the earthly affairs that bonded to an ID card, a bank card, a pre-pay card, a telephone card, a card such as a commuter pass.

[0002]

[PRIOR ART]

In late years, A final phase, an ID card, a bank card, a pre-pay card, a telephone card, various cards such as a commuter pass are overused a card in the times. These cards print a picture, a photograph of the face, a letter, cord information by means of printing apparatus, and it is produced by, besides, a magnetic recording device is used, and a magnetic recording doing cord information. Now, When these cards are printed, and a magnetic recording is ground, when an alien substance such as earthly affairs bonds to the surface of a card becoming material or the back side, the card which was produced without it being possible for good print, a magnetic recording becomes bad. In addition, When an alien substance such as earthly affairs bonds to a card when print, a magnetic recording card considered to be are employed, there can be the thing that recorded cord information cannot be read with a reader.

[0003]

Thus, Or, as for the this application person, paths of transportation of the ex-process that transported cord information to the leader writer unit that a magnetic recording did to a card in "the card conveyer" which proposed installed a cleaning unit to remove the alien substance which bonded to a card in paths of transportation of an ex-process to transport to a print unit to print a picture, a photograph of the face, a letter to a card first on October 31, 1991.

[0004]

It is simple, and, as indicated in FIG. 5, feature of cleaning unit 200 is illustrated typically here, but, transportation road H of card C is faced in an urging state by the biasing means that a pair of cleaning rollers 201,202 do not illustrate, and turn liberty is installed in in each arrow direction. As for these cleaning rollers 201,202, the surface is composed of polyurethane rubber having the adhesiveness or silicon rubber.

[0005]

And, While card C can leave *hasamioshi* between cleaning roller 201 and cleaning roller 202, when is transported in consonance with transportation road H, alien substance 203 such as the earthly affairs that bonded to card C shifts to cleaning roller 201,202 side by touching cleaning roller 201,202 having the adhesiveness, because alien substance 203 such as earthly affairs is removed from card C, it is configured afterwards so that card C can do a magnetic recording or print well.

[0006]

[PROBLEM TO BE SOLVED BY THE INVENTION]

Now, Is accumulated in cleaning roller 201,202 side alien substance 203 which shifted abundantly after having employed for a long term although alien substance 203 such as the earthly affairs that bonded to card C can be removed by means of cleaning roller 201,202 at described above cleaning unit 200, alien substance removal ability of cleaning roller 201,202 falls, because there is not removal ability at last at all, when this alien substance 203 is removed by cleaning, ka or work to change cleaning roller 201,202 is sometimes done, improvement of cleaning unit 200 is expected still more more.

[0007]

[MEANS TO SOLVE THE PROBLEM]

The present invention was done in view of the problem, is welded with pressure to the rubber roller a rubber roller and the surface rotating along with transportation of a card comprise the strong adhesiveness than the rubber roller and and gravity or a spring is gone through, a turn of the rubber roller and the adhesion roller which it cooperates with, and rotate are comprised, and it is, when the card is transported, it makes an alien substance such as the earthly affairs that bonded to the card shift to the rubber roller, card cleaning apparatus including having composed the alien substance which shifted on the more rubber roller to shift to the adhesion roller is provided.

[0008]

[EXAMPLE]

One embodiment of card cleaning apparatus concerning the present invention is explained below referring to figure 1 - figure 4 in detail.

[0009]

Perspective diagram, FIG. 3 that exploded perspective view, FIG. 2 that FIG. 1 disassembles card cleaning

apparatus concerning the present invention, and was shown magnify adhesive tape member shown in FIG. 1, and it was shown in are figures to explain movement of card cleaning apparatus concerning the present invention. Furthermore, FIG. 4 is the figure which showed the transformation card cleaning apparatus concerning the present invention in question typically.

[0010]

In FIG. 1, rectangle-shaped card C is transported in consonance with predetermined transportation road H, card cleaning apparatus 1 concerning the present invention is installed in this transportation road H. There is in a card passageway before transporting to card C there is in a card passageway there is in a card passageway before transporting cord information to card C in the process that a magnetic recording does with transportation road H that card cleaning apparatus 1 was installed in here or before transporting to card C in a process printing a picture, a photograph of the face, a letter or production is settled in a process reading recorded cord information. That is to say, Before transporting card C in these magnetic recording processes, printing process, a reading process, it is necessary to remove an alien substance such as the earthly affairs that bonded to a card beforehand, because of this card cleaning apparatus 1 is installed.

[0011]

With card cleaning apparatus 1, it "is L-shaped", and it is taken its eyes off, and ni formed a pair of roller support bracket 2,3 face an interval each other, and it is done *sui**. Is almost formed symmetry with roller support bracket 2 and roller support bracket 3 of the left of the right side here, when it is described mainly on roller support bracket 2 of the left, notch ditch 2a₁ of a letter of semicircle is formed above the tip by perpendicular plane 2a, bore 2a₂ is formed approximately centrally, oval bore 2a₃ is formed underneath, pin 4 goes to oval bore 2a₃ around outward more, and it protrudes, and is adhered. On the other hand, Notch ditch 3a₁, bore 3a₂, oval bore 3a₃, pin 5 are formed than top in vertical face 3a of roller support bracket 3 of the right side by the above and symmetry. And, Horizontal plane 2b, 3b which it is L-shaped, and it is bent, and is almost formed as against vertical face 2a of roller support bracket 2,3, 3a by a right angle become the establishment side.

[0012]

In addition, As for the first rubber roller 7 coupled with motor 6 that it is goes through roller axis 8, and, between vertical face 2a of roller support bracket 2,3, bore 2a₂ which bored centrally of 3a, 3a₂, it is done *jikushi* in turn liberty by drive source and the first rubber roller 7, it is done *yokoka* in horizontal plane 2b, 3b and an approximately parallel state. It is cylindrical, and the first rubber roller 7 winds rubber member 9 such as polyurethane rubber or silicon rubber in consonance with outer circumference of roller axis 8, and it is configured. As for this rubber member 9, alien substance 15 such as the earthly affairs that, as discussed below, bonded to card C comprises the weak adhesiveness of the degree that can shift in the first rubber roller 7 side.

[0013]

In addition, While, between vertical face 2a of roller support bracket 2,3, oval bore 2a₃ which bored underneath of 3a, 3a₃, the second rubber roller 10 welds with pressure to the first rubber roller 7 from the lower part, roller axis 11 is gone through, and is done *jikushi* in turn liberty in parallel with the first rubber roller 7. It is cylindrical, and rubber member 12 such as polyurethane rubber or silicon rubber is wound along outer circumference of roller axis 11, and the second rubber roller 10 is configured same as the first rubber roller 7, too. In addition, It is had a long more outward than oval bore 2a₃, 3a₃, and it sticks out, and an ends of roller axis 11 of the second rubber roller 10 is formed, it is twisted to an ends of this roller axis 11 that protruded, and a one end of spring 13,14 leave latch mechanism, and it is twisted, and other end of spring 13,14 does latch mechanism to pin 4,5 adhered in perpendicular plane 2a, 3a. Thus, The second *jikushi* rubber roller 10 considered to be is biased with twist spring 13,14 of right and left in a state to loosely engage in oval bore 2a₃, 3a₃ above, and it is always welded with pressure to the first rubber roller 7 from the lower part. In addition, Paths of transportation H of card C is installed in consonance with an interval with rubber roller 10 of the first rubber roller 7 and the second, when motor 6 is driven, the first rubber roller 7 rotates in clockwise (an arrow direction), while is done *hasamioshi* to 7,10 ken both rubber rollers card C by this, become transport to Imperial court music in Chinese style (an arrow direction). Furthermore, It is configured the second downward rubber roller 10 cooperates with by this movement, and to rotate in anti-clockwise (an arrow direction). In addition, At a stage before card C is transported to the left (an arrow direction) with both rubber roller 7,10, there is a case bonded to alien substance 15 such as earthly affairs in card C, it is in a condition.

[0014]

In addition, It is done *jikushi* in a state to loosely engage in parallel with the first rubber roller 7 by turn liberty to be able to weld adhesion roller 16 that it is in feature of the present invention to vertical face 2a of roller support bracket 2,3, notch ditch 2a₁ of 3a formed above, 3a₁ with pressure to the first downward rubber roller

7 by means of own self-respect. Because the first rubber roller 7 rotates in clockwise (an arrow direction), this adhesion roller 16 cooperates with with this, and it is for structure rotated by anti-clockwise (an arrow direction). In addition, A method to weld adhesion roller 16 with pressure to the first rubber roller 7 uses gravity in an example, but, a spring member is used without limiting to this, and it may be welded with pressure. Adhesive tape member 18 having the strong adhesiveness winds than the first rubber roller 7, and, as for described above adhesion roller 16, the front is formed here by outer circumference of roller axis 17.

Furthermore, When it is magnified, and it is described, adhesive tape 18b having the adhesiveness is cylindrical, and the front is wound mainly on bobbin 18a of a letter of pipe with adhesive tape member 18 composing one part of adhesion roller 16 a plural number time by FIG. 2 and sewing machine eyes 18b₁ is ticked away every 1 round per minute by adhesive tape 18b, is formed to be able to tear up adhesive tape 18b of length for 1 round per minute from this sewing machine eyes 18b₁ easily. In addition, The strong adhesive strength is comprised than rubber member 9 composing the first rubber roller 7 that the front mentioned adhesive tape 18b having the adhesiveness above. And, It functions for adhesion roller 16 by loading bobbin 18a in roller axis 17. In addition, When plural adhesive tape 18b were wound in roller axis 17 in an example a time, it is equal, and it is configured, but, only a length minute of 1 round per minute may wind adhesive tape 18b in roller axis 17 without limiting to this.

[0015]

Next, Movement of card cleaning apparatus 1 concerning the present invention by the constitution is explained by means of FIG. 3.

[0016]

At first, When motor 6 (FIG. 1) are driven, rubber roller 7 of the first coupled with this rotates in clockwise (an arrow direction), it cooperates with for a turn of rubber roller 7 of this the first, and adhesion roller 16 it rotates and rubber roller 10 of the second welded with pressure from the lower part welds with pressure to anti-clockwise (an arrow direction) than top rotates in anti-clockwise (an arrow direction). Here, Alien substance 15 such as earthly affairs transports to Imperial court music in Chinese style (an arrow direction) by the transportation means that does not illustrate card C bonded to along transportation road H, while when end of card C is pushed between rubber roller 10 of the first rubber roller 7 and the second, is done *hasamioshi* to 7,10 ken both rubber rollers card C, is transported to Imperial court music in Chinese style (an arrow direction) more. As this occurs, alien substance 15 such as the earthly affairs that bonded to card C shifts to rubber roller 7,10 side of *dai* 1, the second. That is to say, Because alien substance 15 shifts to rubber roller 7,10 side of *dai* 1, the second after having passed rubber roller 7,10 of *dai* 1, the second, alien substance 15 is completely removed by card C on the left hand side of rubber roller 7,10 of *dai* 1, the second as had illustrated.

Furthermore, Adhesion roller 16 welds with pressure to rubber roller 7 of upward the first, the front winds adhesive tape 18b comprising the adhesive strength to be stronger than the first rubber roller 7 adhesive tape member 18 having the adhesiveness the front composing one part of this adhesion roller 16 as-previous-described. Hence: Alien substance 15 of card C which shifted to the first rubber roller 7 shifts to adhesive tape 18b side more. Thus, Alien substance 15 is removed with adhesion roller 16 the first rubber roller 7 side by adhesion roller 16 rotating, is shifted to the first rubber roller 7 alien substance 15 which bonded to card C again, the movement is repeated. On the other hand, With increasing RPM of adhesion roller 16, quantity of adhesion of alien substance 15 increases to *jo* in adhesion roller 16 side when shifted via the first rubber roller 7 alien substance 15 which bonded to card C to adhesion roller 16 side. Thus, When adhesive tape 18b of length for 1 round per minute is torn up than sewing machine eyes 18b₁ engraved into adhesive tape 18b at the stage that quantity of adhesion of alien substance 15 of adhesion roller 16 side increased, new adhesive tape 18b appears. Here, Whenever new adhesive tape 18b appears, because although the volume number of times of adhesive tape 18b decreases to *jo*, adhesion roller 16 can leave *jikushi* in a state to loosely engage to notch ditch 2a₁, 3a₁, a gravity direction can drop, adhesion roller 16 can be welded with pressure to the first rubber roller 7 without the first class hindrance. In addition, When only 1 round per minute winds adhesive tape 18b, it should make wind new adhesive tape 18b.

[0017]

Because the first rubber roller 7 coming in contact with card C directly is always cleaned with adhesion roller 16 by repetition of the above-mentioned movement, it appears among alien substance 15 which bonded to card C, alien substance 15 which bonded to the upper part of card C is completely removed.

[0018]

In addition, After card C passed between rubber roller 7,10 of *dai* 1, the second, furthermore, alien substance 15 which as described above bonded to the first rubber roller 7 shifts to adhesion roller 16 when motor 6 (FIG. 1) continue being rotated, the first rubber roller 7 reaches a state cleaned with alien substance 15 with adhesion roller 16. On the other hand, Because card C is already transported to an arrow direction, the second rubber roller 10 welds with pressure to the first rubber roller 7 directly, by little shifts to the first rubber roller 7 that alien substance 15 which bonded to the second rubber roller 10 is cleaned. When one is stained among rubber roller 7,10 of *dai* 1, the second having the same adhesive strength, and state, the other touch the reason for this in a cleaning state each other, and it rotates, alien substance 15 which bonded to a dirty rubber roller of shifts to a rubber roller of a cleaning state, it is able adhesion degree of alien substance 15 of both rubber roller 7,10 to be averaged.

[0019]

As thus described alien substance 15 which bonded to the second rubber roller 10 side goes through the first rubber roller 7, and it shifts to adhesion roller 16 slowly when it comes into contact, and rubber roller 7,10 of *dai* 1, the second continue being rotated, the second rubber roller 10 is considerably cleaned, too, is kept alien substance removal ability of bottom (the back side) of card C without falling. Thus, Alien substance 15 which bonded to bottom (the back side) of card C is removed.

[0020]

Next, FIG. 4 is used, and transformation card cleaning apparatus 20 to completely remove alien substance 15 which bonded to the upper part of card C and bottom in question is described. In addition, Transformation card cleaning apparatus 20 in question applied technical thought of card cleaning apparatus 1 explained first, and it was transformed partly, *fu* does a new code to a component transformed here, and it is simple, and it is described.

[0021]

With transformation card cleaning apparatus 20 shown in FIG. 4 in question, non-drive rubber roller 21 which does not have drive source instead of the first rubber roller 7 established to card cleaning apparatus 1 which described first is substituted for, and it is established. Alternatively Card C is transported to Imperial court music in Chinese style (an arrow direction) with rubber roller 24 to weld with pressure to rubber roller 23 coupled with motor 22 in transportation road H of card C in this side direction and this rubber roller 23. Furthermore, Adhesion roller 16 is welded with pressure to non-drive rubber roller 21 and the second rubber roller 10 to weld with pressure. Thus, Because adhesion roller 16 is installed in an urging state above and below both of rubber roller 10 of non-drive rubber roller 21, the second with transformation card cleaning apparatus 20 in question, alien substance 15 which bonded to the upper part of card C and bottom can be completely removed. Adhesive tape member 18 having the strong adhesiveness winds than rubber roller 10 of non-drive rubber roller 21, the second, and, as for adhesion Laura 16, the front is formed here.

[0022]

In addition, With transformation card cleaning apparatus 20 in question, rubber roller 10 of non-drive rubber roller 21, the second which adhesion roller 16 welds with pressure is not coupled with drive source transporting card C, but, even if this constitution is applied to card cleaning apparatus 1 which described first, the second class hindrance is not produced either.

[0023]

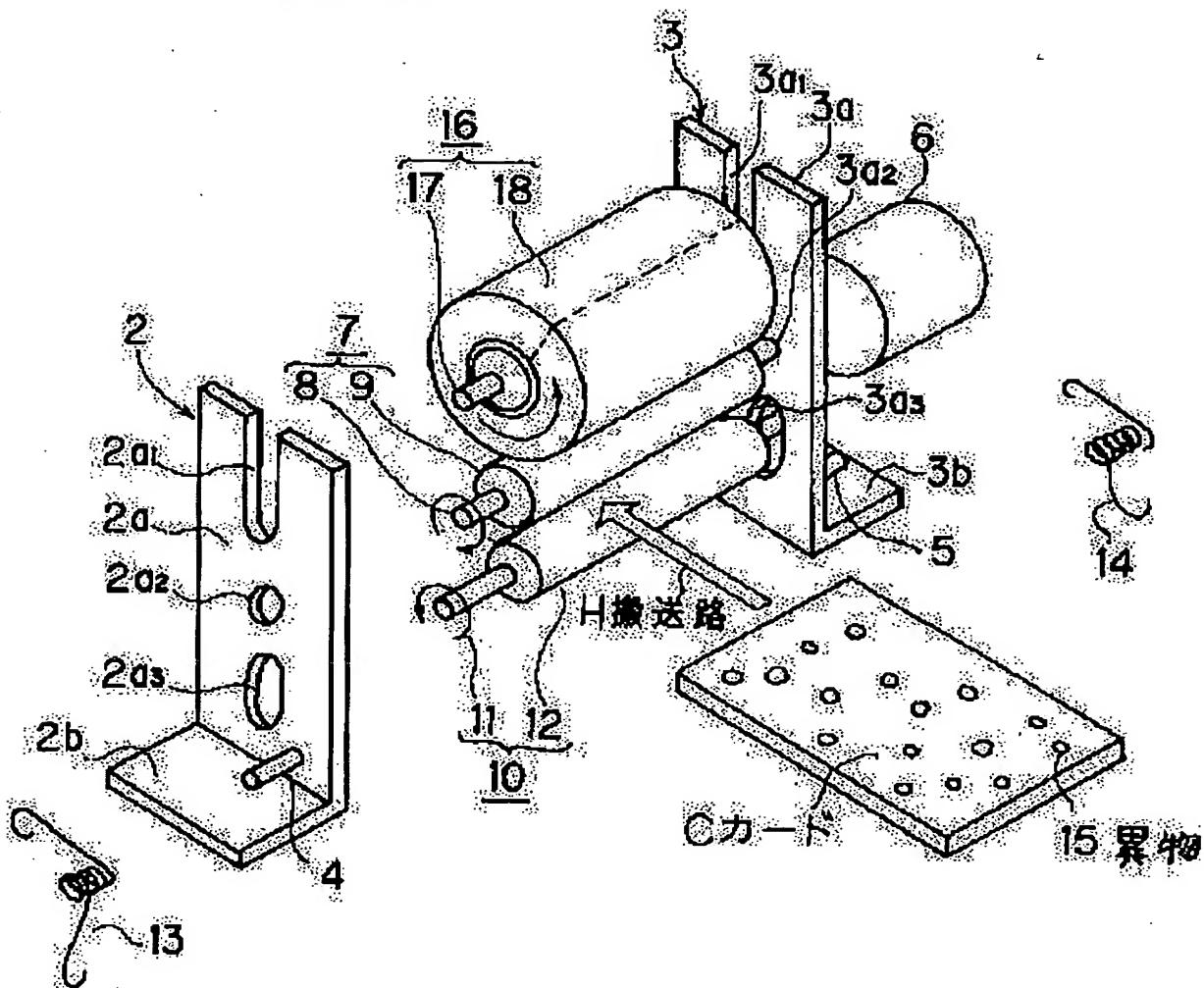
According to card cleaning apparatus 1,20 explained in detail, is shifted alien substance 15 such as the earthly affairs that bonded to card C because the surface welded adhesion roller 16 having the adhesiveness to be stronger than a rubber roller (7,10,21) with pressure to a rubber roller (7,10,21) rotating along with transportation of card C as things mentioned above to a rubber roller (7,10,21), is shifted to adhesion roller 16 alien substance 15 shifted more by a rubber roller (7,10,21), because card C and a rubber roller (7,10,21) touching directly are always cleaned with adhesion roller 16, alien substance 15 which bonded to card C is completely removed, and card C and a rubber roller (7,10,21) touching directly last for a long term, and it can hold in a good state. Thus, Quality of card cleaning apparatus 1,20 and reliability can be maintained in a good state for a long term, for example, print, a magnetic recording are done in card C well, information recorded more can be read surely.

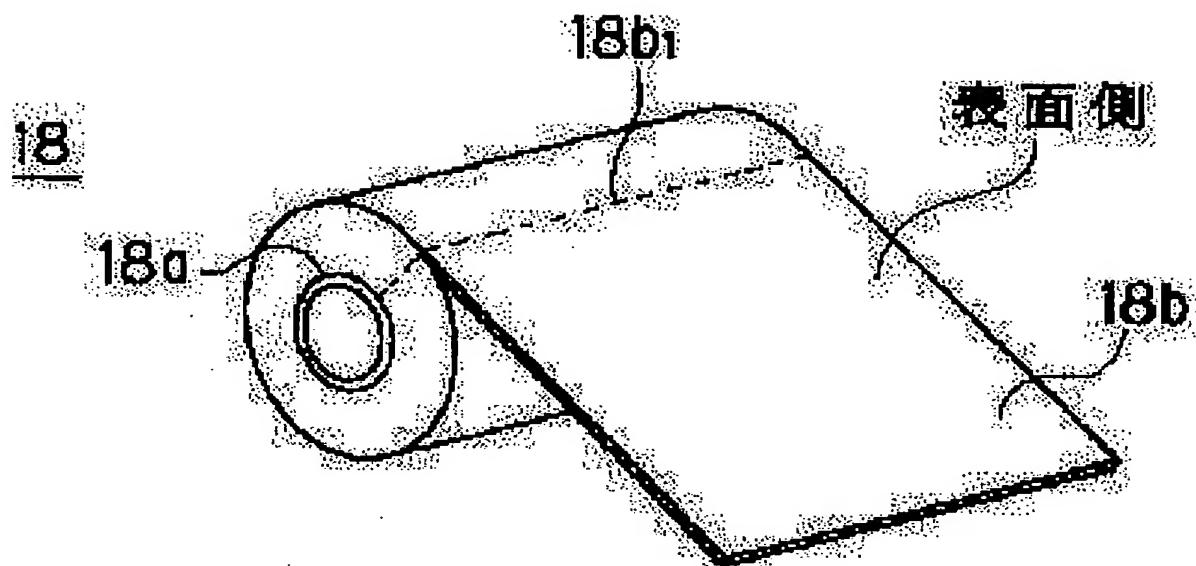
[0024]

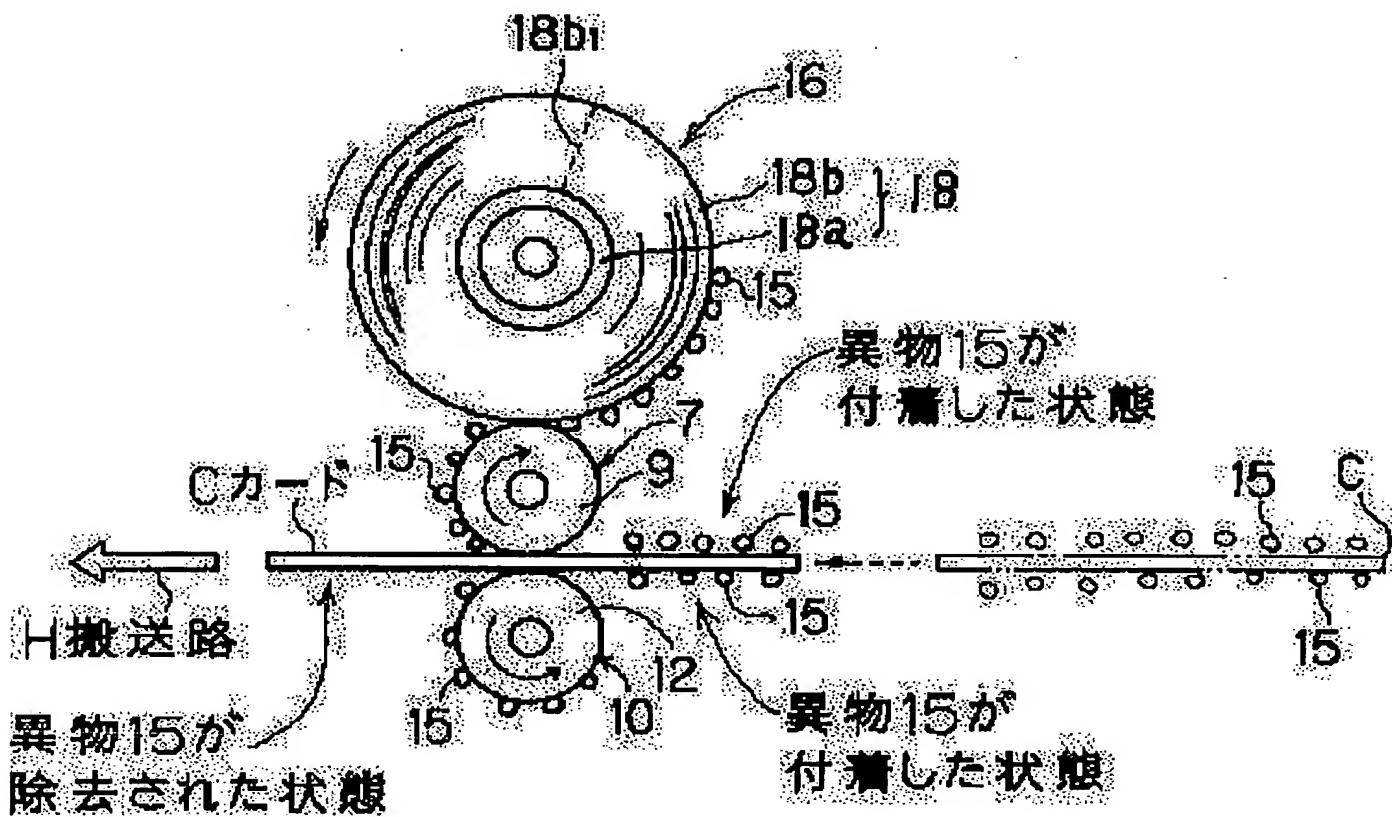
[EFFECT OF THE INVENTION]

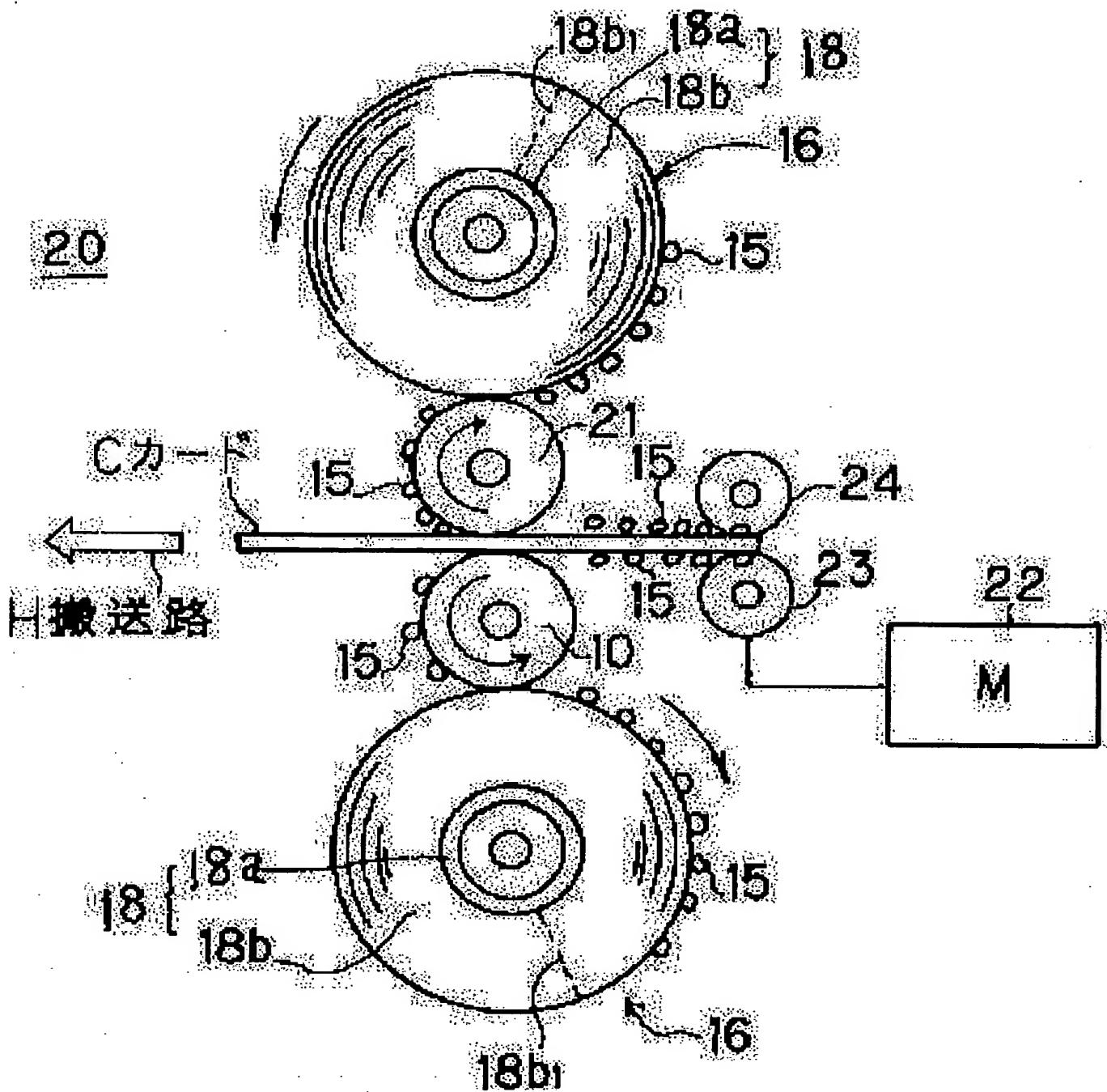
According to the card cleaning apparatus concerning the present invention explained in detail, is shifted an alien substance such as the earthly affairs that bonded to a card because the surface welded an adhesion roller having the adhesiveness to be stronger than a rubber roller with pressure to a rubber roller rotating along with transportation of a card as things mentioned above to a rubber roller, is shifted an alien substance shifted more by a rubber roller to an adhesion roller, because a card and a rubber roller touching directly are always cleaned with an adhesion roller, the alien substance which bonded to a card is completely removed, and a card and a rubber roller touching directly last for a long term, and it can hold in a good state. Thus, Quality of card cleaning apparatus and reliability can be maintained in a good state for a long term , for example, print, a magnetic recording are done to a card well, information recorded more can be read surely.

1 カートン清掃装置

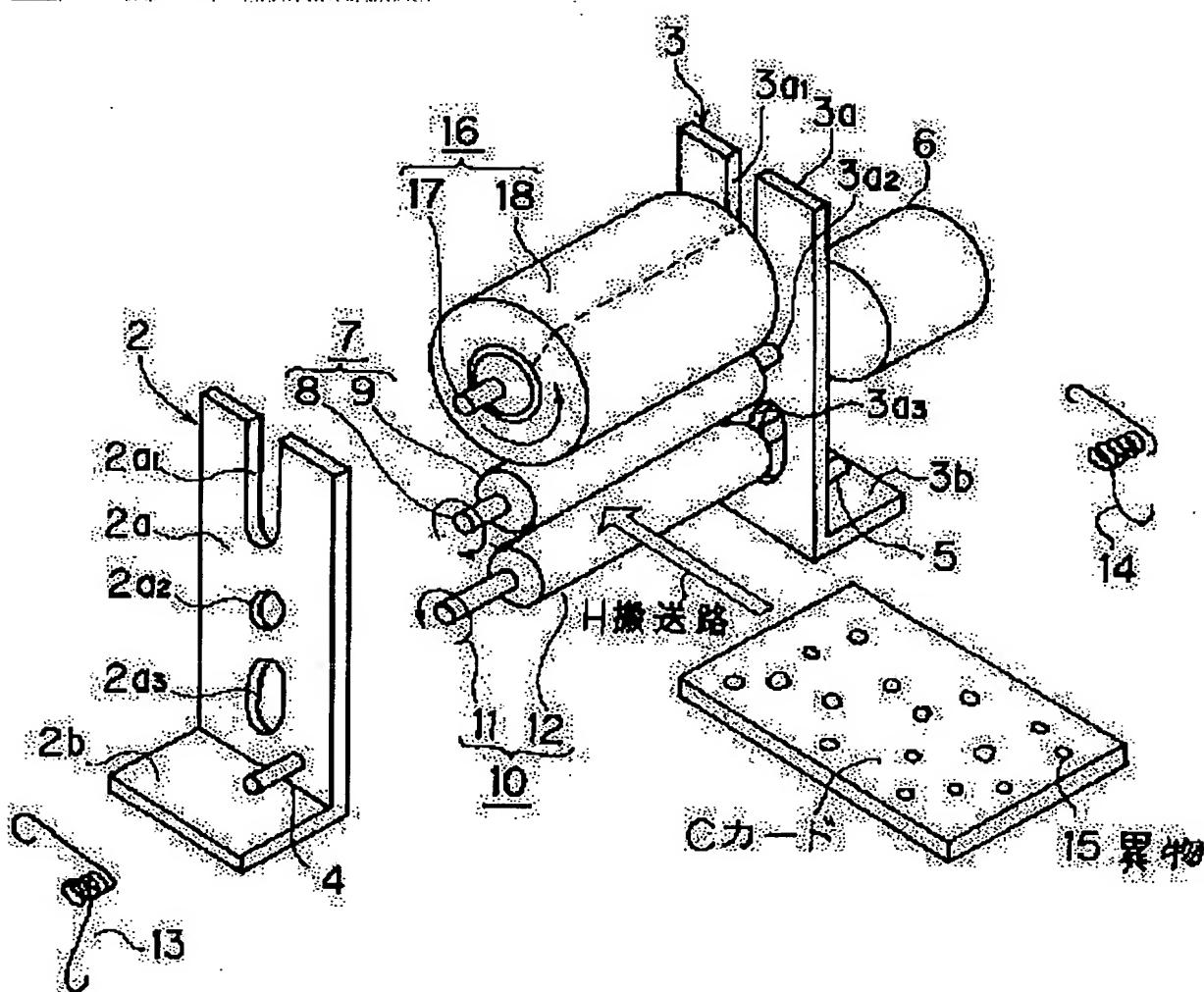




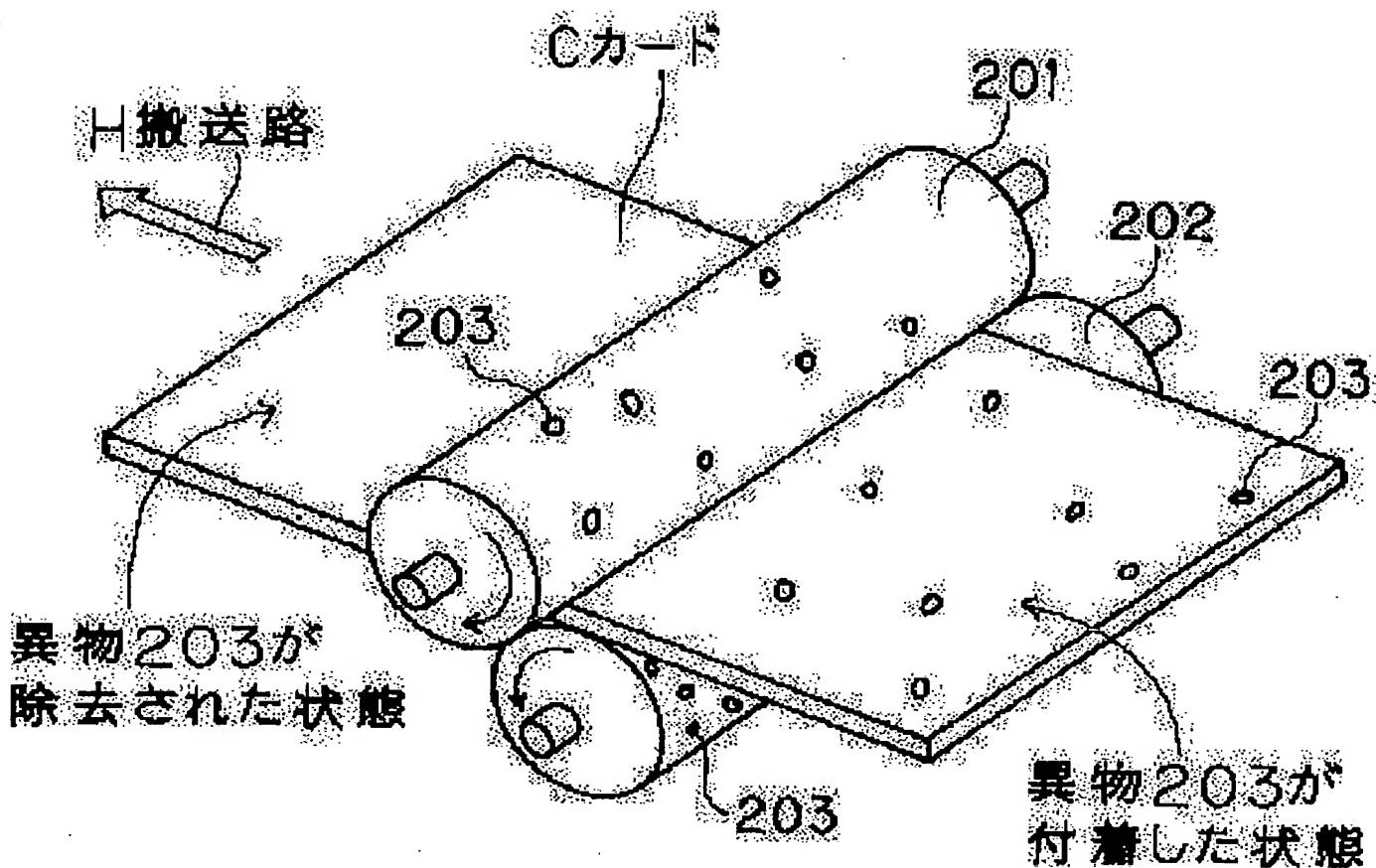




1 カード清掃装置



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